

Work Pulling Activity  
Honors Physics

20 Points Total

Materials: Meter stick, spring scales, wood block or cardboard puzzle box.

Instructions:

The goal of this activity is to experimentally determine the work friction does on the block/box as it slides on the table. We will pull the block/box horizontally at a constant force for five different displacements, and calculate the work friction does on the block/box. We will create a graph showing the relationship between work of friction and displacement pulled, and draw conclusions from our data.

Rubric:

1. Procedure to pull the block and variables measured (1).
2. Pull the block at a constant force for 20 cm, 40 cm, 60 cm, 80 cm, and 100 cm and record the measured variables in a chart (4). The chart needs to be neat and well-labeled.
3. Show calculations of work done by friction during the pull (4). Choose one distance to show the calculations, and provide an answer for the other four distances.
4. Graph displacement on the x-axis and work of friction on the y-axis, and provide a best-fit function to the data (4). Graph needs to be neat and well-labeled.
5. Sources of error and possible ways to minimize error (4; 2 each).
6. Conclusion about the work done by friction, using calculations and graph (3).